# AMERICAN BEE JOURNAL

43d Year. CHICAGO, ILL., SEPT. 3, 1903. No. 36.

WEEKLY

*JAMES U. HARRIS,*
*President-elect of the National Bee-Keepers' Association.*

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2d.—To protect and defend its members in their lawful rights.
3d.—To enforce laws against the adulteration of honey.

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AMERICAN BEE JOURNAL

THE OLDEST BEE-PAPER IN AMERICA

43d YEAR. CHICAGO, ILL., SEPT. 3, 1903. No. 36.

# Editorial Comments

**The Los Angeles Convention** is now history. It was a large meeting of large bee-keepers. There were more colonies of bees represented, and more pounds of honey, than in any National convention of bee-keepers ever held before in this country. The following were elected as officers for 1904:

President—James U. Harris, of Colorado.
Vice-President—C. P. Dadant, of Illinois.
Secretary—Geo. W. Brodbeck, of California.

We expect to begin the publication of the report of the proceedings in full next week, and from time to time we will also give some notes and comments on the trip and the convention.

**How to Write Questions.**—An editorial in Gleanings in Bee-Culture gives rise to the suspicion that the urbane and usually patient editor of that paper has had his patience somewhat tried by the sort of letters he gets containing questions. He says in part:

"Now, I have something to do besides answering letters; but I am perfectly willing to respond to all inquiries. But our friends will save me a great deal of time if they will make their questions brief, write on only *one side* of the sheet, and number the pages. Long letters are apt to be delayed, and perhaps never answered. It takes time and brains to dig a question or two out of a long, rambling letter. Get down to the meat of your inquiry at once, leaving out all unimportant details."

Among the many letters sent in for "Dr. Miller's Answers," some are models of neatness and clearness, but some of them would hardly be placed in that category. It is well always to give in connection with the questions any information or explanations to give a clear understanding of the case; other matter should hardly be mixed up with the questions, but given in a separate part of the letter. Besides having pages numbered, as suggested in the clipping, it is a great help to have the questions numbered. The reasons for writing only on one side of the sheet are more than one, hardly necessary to be given here, but if you want to be good you'll not write on both sides.

It is a real pleasure to receive some letters containing questions, which show at a glance just where each question begins and ends, and require no great amount of study to tell just what the questions are about.

**"A Colony that Never Thinks of Swarming;" A Confession.**—Under this caption appears the following editorial in Gleanings in Bee-Culture:

Some little time ago Dr. Miller and I had a little tilt over the first part of this subject. I was taking the ground that the new shaken-swarm plan was going to do away with many of our difficulties. While Dr. Miller admitted that shaking was effective, and could be made very useful, yet he still expressed a hope that we might some day breed a race of bees that would go on storing honey without swarming, the same as poultry-men have bred several varieties of hens that are non-sitters. I argued that the gain would be only trifling, because a colony could be shaken at the convenience of the apiarist, and thus all desire to swarm be taken away from them in advance. Well, now, for that confession. The events of the last few days have completely converted me to Dr. Miller's view of the matter. While I still have as much faith in the shaken method as I ever had, and while not one of the swarms we shook this season has essayed to go out again, yet a colony that will *stay* on its brood-combs in its old brood-nest, and allow all its brood to hatch, is to be preferred because of the saving in the labor.

At the Harrington yard we shook perhaps a third of our colonies—perhaps the strongest ones. The remainder we left just as they were. When the honey-flow came on it was apparent that the shaking had set them back a little. They had, temporarily, at least, been deprived of their brood, and it takes a day or so right in the honey-flow for the bees to recover themselves again to begin work. Then the brood, after it hatches, requires to be shaken again at the old entrance; and this causes another interruption, and possibly the loss of a queen. If the brood is not shaken back with the swarm after it hatches, then the shaken swarm will, before the season is entirely over, begin to feel the need of the young blood that would recuperate their fast-waning strength when it is most (if ever) needed in the whole season. But Dr. Miller's ideal colony that *never thinks* of swarming will at least keep right on working—keep all of its brood, save all the fuss and bother of shaking frames with starters in, the building of drone-comb, and with all its reserve strength will go on magnificently producing honey. But the never-think swarm I think is still largely a will-o'-the-wisp, and so we will have to content ourselves with shaking for the time being, and occasionally shinning up trees to bring back runaway swarms.

The question whether it is worth while to work toward a non-swarming strain of bees is one that will receive different answers from different persons. Some will say that the results with shaken swarms are so satisfactory that nothing further need be desired. There has been, however, testimony to the effect that in some cases shaken swarms have not had all the swarming mischief shaken out of them. Even if entire reliance could be placed in the shaking as a sure cure against any further attempt to swarm, according to the observation of Editor Root and perhaps others, "a colony that never thinks of swarming" will give at least a little better result than if interrupted by shaking.

There is no question as to the fact that there is a notable difference in different strains of bees as to the matter of swarming. Some are so given to swarming as to impair their value greatly, while here and there are reported cases where there is little or no swarming. A man who has bees that are greatly given to swarming will gain to introduce queens of stock noted for little swarming. If now he breeds persistently from those colonies that show the least inclination to swarm, will not swarming in that apiary become a constantly diminishing factor? He may never reach absolute non-swarming, but he may approximate it; and approximation is worth something.

**What Kills a Queen in a Ball?**—A difference of opinion prevails. Some think the queen is stung to death, others that she is starved to death, others that she is suffocated. Proof that stinging is the mode of execution is offered by the fact that the sting has been in more than one case actually found in her body. To this it is replied that these are exceptional cases brought about by the interference of the bee-keeper. If the effort be made to disengage the queen from the ball by pulling the ball apart, she will most likely be stung. If *hot* smoke be blown upon the ball, she will be stung. No one, however, has reported finding a queen stung in a ball when the smoker has been held from the ball at such a distance that no heat could be felt from it, the stream of cool, dense smoke being played continuously upon the bees until no longer endurable, when the bees of their own accord would separate from the queen. Neither has any one reported finding a queen stung in a ball if the ball is thrown into a dish of water. The water seems to dampen the heated fury of the ballers, and it is every fellow for himself (or herself) to escape a watery grave, leaving the queen, like the rest, struggling to escape. That does not prove, however, that the bees never sting a queen in a

ball. An argument of some weight is the fact that if a strange bee enters a hive, and the bees are left to their own devices, the queen will be found hours later still alive in the ball. If stinging is the mode of execution, the bees could sting just as well first as last, and why such delay?

There is considerable to enforce the belief that death is caused by starvation. In the case of a laying queen, the great burden of eggs produced requires an immense amount of nourishment, and it is well known that such a queen is being constantly fed by the workers. Being deprived of all food in the ball, small wonder that she should succumb within a few hours.

That suffocation causes death does not seem very probable. It is not likely that the bees can be so densely packed in a ball as to prevent the entrance of all air. There will still be plenty of spaces to allow its entrance. Moreover, if the queen should be suffocated, would not the bees in immediate contact with her be also suffocated?

Until some one finds a dead queen in the midst of a ball with a sting in her body, the queen being already dead when the ball is first meddled with by the bee-keeper, it seems that the advocates of the starvation theory have the best of the argument.

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**Artificial Cell-Cups.**—A correspondent of the British Bee Journal having had difficulty in getting the bees to accept larvæ in artificial cell-cups, sent a sample of the same to the editor, trying to find what the trouble was. The editor replies:

We rather think the fault lies in your "cell-cups," judging by samples sent. These are all right, and nicely made at the lower or open end of the "cup," and also with regard to size and capacity of same, but the base of the cup has a little pit or well—so to speak—formed by the flat point of the stick or "dipper," which is altogether unsuitable in shape for the proper development of the queen-larva, and, as such, is probably rejected by the bees. Had the base of the cell been simply concave in shape, so as to form a *rounded* base to the cell, it would be far more likely to be accepted by the bees for queen-rearing.

In this country cell-cups are used of both kinds, but those of the "little pit or well" are specially intended to have transferred into them the larva in a little cup of the cocoon of its own cell. The comb containing the larvæ is shaved down till a shallow cup of the cocoon can be picked out, and this little cup, larva and all, is pressed down with a special instrument into the "well" of the artificial cell-cup. The bees accept this very readily, for the larva is left in its natural condition surrounded by the same food the bees gave it.

Whether these artificial cell-cups with the depression in the bottom would work just as well with the larvæ placed in them without the cocoon has probably not been tried much. But should a cell-cup with the little pit or well be altogether unsuitable in shape for the proper development of the queen-larva? Thousands of good queens have been developed in emergency-cells, and these have a pit of the same diameter and a good deal deeper.

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# Convention Proceedings

## Proceedings of the Texas Bee-Keepers' Convention Held at the A. & M. College, at College Station, July 8 to 10, 1903.

BY LOUIS H. SCHOLL, SEC.

(Continued from page 550.)

### BOTTLING HONEY.

It is a well-known fact that when honey is bottled at a temperature of 160° Fahr., or thereabouts, and sealed while still at that temperature, it will remain liquid indefinitely. It seems likely that the temperature at which granulation can be prevented will vary with honey from different sources. At the same time, too high a temperature when bottling will impair the flavor of the honey. To determine at what temperatures honey of different kinds could be bottled to best advantage, experiments were begun in February, 1903. Eysenhardtia honey, procured from Louis H. Scholl, of Comal Co., Tex., was bottled and sealed at the following temperatures: 150, 155, 158, 160, 163, 165, 168, 170, 173, 175, and 180 degrees. Six bottles of each temperature were corked and sealed with sealing wax, the intention being to open one bottle (each temperature) six months after bottling, one in a year, one in two years, one in two and a half years, and one in three years after bottling, and make comparisons of the flavor and keeping qualities. A bottle of the honey, corked but not sealed and without being heated, was also preserved.

Within three months the unsealed honey was thoroughly granulated. Up to June 1, none of the sealed honey had granulated. On June 17, the first series of bottles were opened and examined by Prof. Sanderson and Mr. Scholl, and upon these Mr. Scholl reports:

"The honey bottled at 150 degrees had retained its flavor, while the higher temperatures of heating had impaired the flavor. This was noticeable with only 5 to 8 degrees difference in heating, and that bottled at 180 degrees was very strong, and scratched the throat badly."

In this lies the suggestion of future experiments with honey of different kinds. Experiments could also be conducted to ascertain the most economical methods and mechanical arrangements for bottling, and the profit to be derived from placing honey on the market in this form. There is no doubt that honey in small, neat packages will bring a higher price than in bulk. Whether or not the increased price would be sufficient to make the increased work profitable, remains to be clearly demonstrated.

### WAX EXPERIMENTS.

A series of experiments were undertaken recently to determine the proportion of wax in comb of different ages, and the best methods of removing same. The intention was to make the tests both accurate and extensive, but the scheme was not entirely completed, and it is hoped that this work will be continued to an exhaustive degree at the Experimental Apiary. The details of these experiments would be somewhat cumbersome, and as they will be submitted for publication elsewhere, only a summary of the results thus far obtained will be given here.

Old brood-comb, the age of which was undoubtedly five years or more, was analyzed and found to contain 36.3 percent of wax, 17.3 percent of soluble (in condensing steam) matter other than wax, and 46.4 percent of solids (insoluble).

Brood-comb two years old was found to contain 47.2 percent of wax, 21.1 percent soluble matter, and 31.6 percent solids. One-year-old brood-comb contained 57.8 percent wax, 22.1 percent soluble matter, and 20 percent solids. "Slum-gum" (refuse from solar wax-extractor) contained 24 percent wax, 40 percent soluble matter, and 36 percent insoluble matter. New comb, built upon full sheets of thin super foundation the present season, and which had never contained brood, contained 88 percent wax, slightly over 11 percent solids, and less than 1 percent soluble matter.

In a test of the Root-German steam wax-press, this machine, under full head of steam and careful operation, removed from the old brood-comb (five years or more) *8 percent of the wax contained.* From two-year-old brood-comb the machine removed 89.5 percent, and from new comb

98 percent of the wax contained therein. From slum-gum the steam wax-press removed 76.5 of the wax therein.

The solar wax-extractor was tested with brood-comb one year old and removed only 77 percent of the wax contained. It is also worthy of note that even from very old comb, bright yellow wax was secured by using the steam wax-press, esecially if the melted wax as it comes from the press be allowed to drip into cold water. The results of these experiments, when tabulated, appear as follows:

TABLE I.

| Description of Comb. | Percent Wax Contained. | Percent Soluble Matter. | Percent Solids. | Percent Wax Removed by Steam Press. | Percent wax removed by Solar Extractor. | Percent Wax removed by pressure under hot water. |
|---|---|---|---|---|---|---|
| 3-year old brood-comb. | 36.3 | 17.3 | 46.4 | 80 | Not determined. | Not det. |
| 2-year old brood-comb | 47.2 | 21.1 | 31.6 | 89.5 | Not det. | Not det. |
| 1-year old brood-comb. | 57.8 | 22.1 | 20 | Not det. | 77 | Not det. |
| Slum-gum. | 24 | 40 | 36 | 76.5 | Not det. | Not det. |
| New comb built on thin super foundation. | 88 | Less than 1 percent | 11 | 98 | Not det. | Not det. |
| Cappings. | Not det. | Not det. | Not det. | Not det. | Not det. | Not det. |

The above table indicates also what points remain to be determined in order to make the series complete.

HIVE-COVERS.

Six different hive-covers were tested to determine their resistance to heat, when placed in direct sunlight. As the bees in any colony always attempt to maintain the normal temperature within the hive, a comparison of covers, made upon hives containing colonies, would not be accurate, accordingly six empty supers, each having upon it a different cover were exposed May 30 and June 1 to steady sunshine from 8 a.m. until 7 p.m. At no time during the day were they disturbed, nor was any circulation of air allowed inside of them. Each super contained a tested, self-registering thermometer which registered the highest temperature, that is, in direct sunlight; a similar thermometer was placed on top of one of the covers. The covers tested were as follows:

Excelsior cover; Excelsior cover with shade-board made of one-inch pine, 24x30 inches, raised 3 inches above cover by means of cleats, thus allowing a free circulation of air between cover and shade-board; Ventilated gable-cover; Double, paper-covered, with dead-air space between two portions of cover, designated as "flat cover." "Hill" cypress cover, made of a solid one-inch cypress board, with heavy end-cleats. "Lewis" cover, made of ¼-inch pine, covered with tin, and allowing a contained space of about 2 inches above top-bars.

All the above were covered with two coats of white paint. The highest temperatures attained under these covers are given below:

TABLE II.

| Cover. | Date. | Temperature in Sun. | Maximum attained under cover. |
|---|---|---|---|
| Excelsior. | May 30 | 102° F. | 93.8 F. |
| Excelsior with shade-boards | May 30 | 102° F. | 93.4 |
| Ventilated gable. | May 30 | 102° F. | 93.5 |
| Double cover dead-air spaced. | May 30 | 102° F. | 94.5 |
| "Hill" Cypress. | May 30 | 102° F. | 97 |
| "Lewis" metal covered. | May 30 | 102° F. | 94.2 |
| Excelsior. | June 1 | 103.5 | 93.8 |
| Excelsior with shade-board. | June 1 | 103.5 | 92 |
| Ventilated gable. | June 1 | 103.5 | 92.5 |
| Double cover dead-air spaced. | June 1 | 103.5 | 94 |
| "Hill" cypress. | June 1 | 103.5 | 96.9 |
| "Lewis" metal-covered. | June 1 | 103.5 | 93.5 |

For the two days it will be seen that the temperature under each cover, averaged as follows: Excelsior with shade-board, 92.7 degrees; Ventilated gable cover, 93 degrees; Excelsior, 93.8 degrees; "Lewis" metal-covered, 93.85 degrees; flat (dead-air) cover, 94.25 degrees; "Hill" cypress, 96.95 degrees.

It is regretted that warmer weather was not immediately at hand for a more crucial test, and it is hoped the experiment will be repeated during the hottest weather.

NORMAL TEMPERATURE OF BROOD CHAMBER.

In order to determine the normal temperature of the brood-nest, for comparison with above results, a self-registering thermometer was placed in a 5-frame nucleus and left 24 hours. Another was placed in a full colony (*crowded* with bees forced down from the super into the brood-nest for the purpose) and left the same length of time. Both nucleus and full colony were protected from the sun. The maximum temperature attained in the nucleus during the 24 hours was 94 degrees, and the maximum in the crowded colony was 94.5 degrees. We conclude, therefore, that the normal temperature is between 94 and 94.5 degrees. Any cover that in the hottest weather will not allow an inside (of an empty hive) temperature of more than 94 degrees may be considered a safe cover. Any cover allowing a higher temperature than this, even if no more than one degree, is detrimental. It is much easier and more economical for the bees to *raise* the hive temperature to their normal of 94 degrees by heat production than it is for them to *lower* the temperature to 94 or 94.5 degrees by ventilation.

Any tight wooden cover, substantially made, with a good shade-board above it, is a better protection from heat than complicated or high-priced covers involving "new principles." We do not sanction such, as the latter for shade-boards are cheaply and easily made (where it is necessary to place colonies in the sun); and the ordinary cover and shade-board together usually cost less than the "special" covers designed for protection from the sun.

FUTURE INVESTIGATIONS.

Perhaps no industry can show more rapid progress and development within the past 30 years than apiculture. Indeed, present methods, making possible the profitable production of honey on an extensive scale, are the developments of recent years. The bee-keeping industry is peculiar in that the greater part of its development has been due to private enterprise and experimentation, rather than to scientific study by government experts or others employed especially for that purpose. The bee-keeper has received practically no assistance, aside from some very creditable work done by the United States Department of Agriculture, and a few insignificant spurts by several Experiment Stations. Several of the latter have started off in apicultural work with promise of attaining good results, but the majority of them have allowed the work to lapse—either from lack of funds or disinclination, or both—before they had really gathered together sufficient equipment for real investigation.

I think I stand without fear of contradiction when I say that to-day Texas has the best equipped experimental apiary in North America. The A. & M. College promises very liberal and material support for the future, and the management of this apiary is in most careful and competent hands. We are justified, therefore, in expecting most definite and profitable results in the future from our Experimental Apiary.

The problems which present themselves for investigation are both numerous and varied. I will not occupy more space than is necessary to call your attention to some of the more important ones.

RACES.—Prof. Frank Benton, of the United States Department of Agriculture, has made a careful study of the traits, characteristics and advantages of the principal races. His published works are familiar to all of you. However, much remains to be done along this line. It does not necessarily follow that a race adapted to Northern or Eastern States will be found well adapted to Texas conditions, and it is not likely, either, that a race giving the best results in one portion of Texas will prove the race best adapted to all portions of that State. There is a large field for experimental work in hybridizing these races and testing the crosses thus secured.

Taking the five races, Italian (for the present purpose the 3-banded Italians, Golden and Imported—or "leather"—Italians are considered as one race), Cyprian, Holy Land, Carniolan, and German (black), we have, by combinations, the following 10 possible crosses: □ Italian-Cyprian, Italian-

Holy Land, Italian-Carniolan, Italian-German, Cyprian-Holy Land, Cyprian-Carniolan, Cyprian-German, Holy Land-Carniolan, Holy Land-German, and Carniolan-German. However, in many forms of animal life the female is known to transmit to the offspring certain prominent characters or characteristics, and the male certain other characters. This is notably the case in the breeding of fancy poultry. The same principle is recognized by many bee-keepers in producing crosses between the races. If this be true—and we have no evidence that it does *not* hold true—each of the above crosses, or hybrids, is capable of producing two strains, in all probability distinct (more or less) from each other. As an illustration, the Italian-Cyprian cross could be produced in two ways: First, by mating Italian queens with Cyprian drones; and, secondly, by mating Cyprian queens to Italian drones. The same holds true of each of the above 10 crosses, making possible 20 strains.

But if it be true that queens transmit certain characteristics and drones certain other characteristics to the succeeding generation, then the above-mentioned 10 crosses *are not true hybrids*. A true hybrid could only be produced by the following procedure, taking the Italian and Cyprian races as an illustration: An Italian queen mated to a Cyprian drone will give a resultant strain, which, for convenience, we will designate as Italian-Cyprian. A Cyprian queen mated to an Italian drone will result in a strain which we will designate as Cyprian-Italian. If now an "Italian-Cyprian" queen be mated to a "Cyprian-Italian" drone (or *vice versa*), the resulting strain will be a *true* hybrid, possessing the "drone characteristics" and "queen characteristics" of both races. This gives us 10 more possible strains, or a total of 30 strains theoretically possible, from the five principal races. It is, of course, true, that owing to the close similarity to each other, of certain of the five races, many of the above-mentioned strains might be practically identical with each other. Theories are not always borne out in actual practice, however, and the above will give an indication of the possibilities along this line.

QUEEN-MATING.—Closely connected with the above is the problem of successfully controlling the mating of queens to such drones as may be desired. The Manum giant mating-cage, and the use of the glass carboy, have come very near to a solution of the problem, but its ultimate solution will come, as will also a means of mating queens more rapidly than by the use of nucleus-boxes.

HONEY-PLANTS.—These were mentioned in some detail at the beginning of this report, and it is here sufficient to reiterate that many promising foreign and American plants remain to be tested, and the regions of Mexico, New Mexico, Arizona, and even parts of Texas, may possibly yield native honey-plants worthy of cultivation.

HONEY-VINEGAR.—It seems probable that the cheaper and darker grades of honey produced in several Texas localities, and which now rarely net the producer more than 3½ to 4 cents per pound, could be converted into a high-grade vinegar at a considerable profit, and this with but a small amount of labor. There is room for profitable development along this line.

The ideal bee-hive has not yet been constructed, but a careful study of conditions, and of the bees themselves, together with careful experiments, should result in much better equipment than is now used.

At every turn the experienced bee-keeper meets unsolved problems and questions which he can not answer. Most of these offer suggestion for experimental work, which the individual can not take up owing to lack of funds and time, but which can be considered at the Experimental Apiary.

It seems but pertinent, also, that we should call your attention to the advisability of this Association taking steps to disseminate among our farmers and fruit-growers reliable information on up-to-date methods of bee-keeping. Such measures could not but accrue to your individual benefit and to the benefit of the State as a whole. Judicially managed, such steps would rapidly increase the membership of the Texas Bee-Keepers' Association, would tend to prevent the marketing (at low price) of "strained" and "log-gum" honey, and would make possible an annual output of honey at least four times as large as present crops, and that without the least fear of "glutting" the market.

WILMON NEWELL.

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The convention tendered to Prof. Newell, who was the former assistant in the Department of Entomology and Apiarist in charge of the College Apiary, a vote of thanks for the good work he has done while at the College, and they regret that he could not remain at his place at the apiary. The secretary of the Association was instructed to inform Mr. Newell of this resolution.

It was also the sentiment of the convention, and the bee-keepers at large, that they were well pleased to see the position now filled by one of their own State, and one of their own number, Louis H. Scholl, too well known to all the bee-keeping fraternity to need extended introduction.

(To be continued.)

# Contributed Articles

## Education of Apiarian Writers—The Hive Question—Wintering—Excrements of Bees.

BY F. GREINER.

OUR good and esteemed friend from Rhode Island—it is needless to speak his name—has given us a great many interesting articles in the bee-periodicals of late. I have read them with both pleasure and profit, and would like to have a little private talk with you, Mr. Editor, for the gentleman is becoming rather personal in his last article in the June Review. He seems to carry the idea it would be serving the interest of the bee-keeping fraternity if we poor, every-day bee-keepers were "choked off" from having anything to say in the future, and that only the highly educated gentlemen and scientific bee-keepers be allowed to utter their ideas in public. Will it work?

It is without doubt a desirable adjunct for a writer on any subject, apiculture included, to have a college education, and to be "away up" in the sciences, and I wish that I, and everybody else, could have had such a training; but there are probably many who do write, and have written, good things without being educated; it is quite evident that a great many good things would not have been said had these been shut out.

Our good friend, the Rhode Islander, claims the bee-periodical readers have so long been fed on methods that they have lost all taste for the whys and wherefores; he urges looking into the latter first, and when we fully understand them then talk method. I would not dispute the soundness of such advice, but unfortunately we do not all come to the same conclusions after ascertaining the correct whys and wherefores. In many cases our conclusions are nothing more than opinions. I am afraid it is so to some extent with our esteemed and scientific friend, Mr. Miller.

Let us see. He has come to the conclusion, after many scientific investigations, that the Heddon hive is the best hive, and meets the wants of bees and bee-keepers best of any; is the best compromise between bees and the keeper. Other not less thorough and careful investigators come to the conclusion that the many sticks and spaces, particularly in the center of the hive, as in the tiered-up Heddon, are only a hindrance to the bees and retard development. Mr. Reidenbach, editor of the Phaelz-Bienenzeitung, discussed this matter at length in his paper. Dr. Dzierzon pronounces his twin-hive (a bar-hive) as the best hive. Many others in America, as well as elsewhere, are sure that better results are obtained with an unbroken brood-chamber.

Mr. Miller holds that a chaff cushion has no warmth of itself, which is correct. But a woolen blanket has no warmth of its own, and yet it gives us lots of comfort in a cold night. An inch board, even a two-inch plank, is not nearly as effectual. His claim that bees are not drawn to a chaff cushion any more than to an inch board is not valid, if I can understand the language of the bees correctly.

METHODS OF WINTERING BEES.

"As to what is the best method of wintering," again our opinions and experiences are at variance. Mr. Miller has not a very high opinion of the chaff-hive. He gives us his whys and wherefores, etc. His conclusion is that bees need no porous material around them. It is true that a strong colony with good queen and an abundance of good stores will winter in any sort of a hive without the least protection; but as colonies run, good results in wintering are not secured without a good deal of protection and fuss-

ing. For the first 10 years, when engaged in bee-keeping, I used to lose heavily, often losing as high as 50 percent. Since adopting the chaff-hive for out-door wintering my losses have been small, and might have been lessened still more by carefully looking after my bees. This is not saying that by wintering in chaff I have struck the best method, but that it is a safe way, giving uniformly good results. My strongest colonies are usually those which were well packed. The paper-covered colonies have not quite come up to them.

### QUEEN-REARING—FEEDING QUEENS.

Mr. Miller has also investigated the matter of queen-rearing. He undoubtedly rears fine queens, and he has concluded that the Alley method is the best. In his whys and wherefores I fail to find convincing proof that the course he or Mr. Alley pursues is any better, or nearer to Nature's ways, than the course some others pursue. What can it matter what kind of cells we use, if we accomplish the same result, namely, have the young royal larvæ fed abundantly from start to finish, etc.? Is it not a matter of opinion rather than of superiority of method? I think the time will hardly ever come when a method will be found by which Nature can be outdone in the matter of queen-rearing.

Speaking of a queen-bee being fed by workers, Mr. Miller says: "When a queen is free to roam at will, she can get such food as she needs." Is this any more than opinion? Perhaps she *is* able to help herself to such food as she wants, but does she? That is the point. It is true that one may see a queen dip into cells of honey sometimes, but this is not yet proof that she does help herself to all she needs, though undoubtedly it is within her reach. Why is it we so frequently notice the queen-bee, when at liberty in her hive, being fed by the workers?

### EXCREMENTS OF BEES.

Mr. Miller also resurrects the old bone of contention, Are the excrements of bees liquid or solid? I guess he is right, claiming authorities, to say that they are liquid. He, himself, has come to conclusion that feces, when voided by healthy bees, are *dry*. I doubt Mr. Miller means just what he says. I don't believe a bee could void dry matter any more than any other living being of the same or higher order. Would they not suffer from constipation in a most intensified degree? Caterpillars void, perhaps, as dry matter as any living thing, as far as we ordinary mortals can observe. We find their excrements sometimes of beautiful shape, apparently as being shaped under hydraulic pressure. We might call them dry, although they contain some moisture. But the feces of bees are not nearly as dry as these. They are somewhat soft and pliable, although thread-like. They do not break up, but naturally they soon become so dry as to become hard, when they may be broken up in little pellets.

Mr. Miller admits that the bees sometimes void watery excrements, and he lays it to the taking of watery honey, which is an opinion. There are probably other causes. For example, *fright* will produce the same effect, not only in bees, but also in other and more highly organized beings, even humans. It would seem that during the honey season, when conditions are as favorable for bees as they can well be, they ought always to discharge their excrements in the normal, healthy shape—dry—but they don't. Even at this time we sometimes notice watery excrements.

After bees have been confined a long time, as during the winter, their intestines usually become loaded, and the contents are frequently so watery as to be termed liquid. This condition, according to Mr. Miller and some others on this and the other side of the great pond, is pronounced a diseased one. But I hold again that it is a matter of opinion. For practical results the diseased condition really does not begin until the bees, while their confinement lasts, become unable to hold their excrements any longer, and discharge them in this liquid form inside of the hive. Is it not a fact that as soon as a colony can have a good, cleansing flight, and get relief by voiding their excrements, although they may be liquid, that colony may be termed healthy, and will develop normally afterward, if conditions otherwise are right?

### ALL HAVE HOBBIES—EXPERIMENTING.

It is not my intention to go over the list of all Mr. Miller has said in the past. I only want to pick out a few things to show that even as well-informed men as he have their hobbies like others of us who are not so well educated. I appreciate fully what he has said. He is deserving of credit for trying to bring out the truth as it relates to the honey-bee and its management.

I agree with Mr. Miller, it is not safe to rely implicitly on text-books. We must go to the Bee and learn of her, and not take everything for unmistakable fact we find printed. It is my opinion that it is not only misleading, but really wrong, to proclaim this or that theory as true when really we have no proof. For example, "What reason have we to say that the queen-bee lays eggs in the worker-cells which she has knowingly fertilized with sperma from her spermatheca, and other eggs not so fertilized into the larger cells commonly called drone-cells?" What we do know is this:

"Eggs found in worker-cells usually develop into workers; eggs found in drone-cells usually develop into drones." It has not been proven beyond contradiction that a queen-bee lays *any* non-fertilized eggs, and *that she does so at will* is nothing more than assertion. That it is proclaimed as fact tends to hinder others from making further investigations. Is it so humiliating to admit that we don't know? The thinking mind rebels against the very idea of parthenogenesis. As such an eminent man as Prof. Leuckart has said: "To say that an unfertilized egg produces life is only admitting that we have no full conception of the things; in short, that we don't know enough." Scientific men have failed to find evidence that eggs taken from drone-cells were fertilized. This is admitted.

Mr. Miller says: "Let us go to the bee and learn of her." The American bee-keepers are leading the world in practical bee-keeping; they will also turn their attention to the scientific part of it and become a factor of importance here, also. I suggest to our scientific friends who can devote their time to matters of this kind, to make the following experiment:

Select a late after-swarm and hive it on all drone-comb. Drone-comb foundation will not answer, as the bees will not build drone-comb from it, as I have tested. After the queen has become fertile, make frequent examinations, and when a uniform stand of brood in all ages has been secured—it will be worker-brood in drone-cells—remove the queen and note what will happen; particularly see whether any drones are being reared. Try the same experiment a number of times; also, early in the spring, say in March, before the drones are being reared by the best of colonies. The object is to prove whether or not drones are reared from what is termed unfertilized or fertilized eggs.

A second experiment would be this: Obtain perfectly fresh eggs from drone-cells laid by a queen under normal conditions. To accomplish this, I suggest taking a drone-comb from an extracting super, one which has in part been left free from honey, evidently for the purpose of having it filled with eggs by the queen, but being hindered by the queen-excluder has not been able to reach this part of the hive. Such combs are frequently found, and are all ready for the reception of eggs, and will be quickly occupied. Insert this comb in the middle of the brood-nest of a colony desirous to rear drones. It may take but a few minutes before the queen will busy herself upon it. Remove the comb as soon as a few eggs have been deposited, and before the bees have had an opportunity to visit the cells containing them.

If fortunate enough to obtain these untouched eggs, cut out the pieces of comb and give to a hopelessly queenless colony having no brood of any kind, for the purpose of rearing queens. The object of this experiment is to see whether the *so-called* unfertilized eggs will produce a queen. This experiment should be repeatedly made, as we may not be successful in obtaining absolutely fresh eggs. It requires a great deal more care in its execution than the other experiment. It should be borne in mind that after an egg, either in a queen-cell or drone-cell, has once been subjected to incubation, it cannot be made over into anything else. A worker-larva three days old may be built up into a queen; not so a queen-larva, if ever so young, could be made over into a worker. Its destiny has been shaped from the moment the first worker-bee visiting it left the cell serving it as its cradle.

By such and similar experiments some of the knotty questions may be settled without having to depend upon the microscope. It does not require a college education to make these experiments, but if such men as Prof. Cook, for instance, would make them, their conclusions would have more weight with the fraternity. Ontario Co., N. Y.

# Our Bee-Keeping Sisters

Conducted by EMMA M. WILSON, Marengo, Ill.

## Succeeded Beyond Expectation.

I think likely there is much in my experience as a bee-keeper that might be encouraging and helpful to other women, but it takes time to write it, and I seem to have little of it to spare, and especially at this season of the year.

I have over 200 colonies of bees in two yards, one at home where the work is done by a young man who has made his home here for several years, and the other located 3½ miles north of us that I take care of myself, driving out there early mornings and returning at evening. I find the work interesting, profitable and pleasant.

My failures have been few, and my success far in advance of what I expected when I took up the work.

The basswood has no blossoms this year, but white clover is plentiful, and yesterday I hauled home eight supers of nice, white comb honey. CLARA WEST EVANS.

Allamakee Co., Iowa, June 30.

## Kept Bees 8 Years—Honey-Cakes.

There are no bee-keepers around here, and I often wish I had bee-keeping friends here so I could visit and talk bees. I have not lived here quite two years, so I do not know for certain whether it is a good locality for bees. There are lots of dandelions, three kinds of clover, basswood, fireweed, and any amount of blueberries and wild flowers.

I have never had more than 50 colonies at one time; I have only 25 now. I sold some when I moved here.

My son and I work together. I think it is much nicer work than housework. I do not mind the stings at all, just a little pain, and I don't think any more about them. I always work with bare hands. I have kept bees eight years. Honey sells here for 15 cents a pound, and there is a good market at that price.

I enjoy reading the Sisters department very much; it is fine. I wish more would write for it. I will send a recipe you can use, if you wish; perhaps you have it now.

I want to tell you that I have "Forty Years Among the Bees," and it is the finest book of the kind that I ever read; I never get tired reading it.

White clover is just coming into bloom, and I have had but two swarms. It is raining all the time, and is likely to continue for weeks to come. MRS. L. A. MOSHER.

Crow Wing Co., Minn., June 8.

The following is the recipe referred to:

FINE HONEY-CAKES.

One quart of honey; ½ pound white sugar; ½ pound of fresh butter; 1 teaspoonful soda; juice of 2 oranges. Warm this enough to melt the butter, stir hard, adding 1 nutmeg. Mix in 2 pounds of flour, mixing it hard enough to roll; cut out with the top of a tumbler. Bake well.

## Hiving Swarms from Tall Trees.

I take a great interest in the Sisters department in the American Bee Journal, especially so on the subjects of hiving swarms on tall trees. I could not help smiling at the different methods that were given, since you all seemed to aim to get the bees to the ground, which is not the most desirable. What we are after is to hive the swarm, *i. e.*, to get it in the hive so that it will stay there. Now, if you wished to get two things together you would certainly not try to take the heaviest to the lightest, you would take the lightest and carry it to the heaviest.

Therefore, if we have a swarm on a tall tree and the hive on the ground, we can get the hive to the swarm easier than the swarm to the hive, which I do in the following way:

I procure a stone, tie it to a light cord and throw it over the limb on which the swarm is clustered. Now we have the cord over the limb, by which we can draw a heavier rope over the limb. Having gotten the rope over, I tie the hive (which has a bottom-board with an entrance at each end) to one end of the rope and pull on the other end, thereby raising the hive up to the swarm. When the hive reaches the swarm the bees will at once enter, and before long they will all be hived, and the hive may be lowered. The hive should be as light as possible. The two entrances are used so as to be sure of getting one faced toward the swarm.

I clip all my queens, but occasionally one gets superseded and swarms the same year.

I hope you will put this in the Bee Journal, as it will help a good many, and may save some doctor bills, since it is quite different when the hive falls and when the man falls. I have gotten several swarms for my neighbors in that manner, who would not risk their lives for a swarm, but they are "on to" the kink now.

Philadelphia Co., Pa. LOUIS J. BERGDOLL.

## A Letter from a German Sister.

An interesting letter comes from Mrs. Lizzie Schmitt, a German woman who thinks she must write in German because she can not write English correctly enough. Neither she nor others need have any fear on that score. Any inaccuracies of language are easily corrected. At our house German print can be made out fairly well, but when it comes to German writing it is like some people's washing, it has to be sent out to be done.

Mrs. Schmitt has been keeping bees for some time, but since taking the American Bee Journal her progress is more satisfactory.

She had the misfortune to be visited by that dread scourge, foul brood, but got rid of it in one season, which speaks well for her activity. Last year, from 48 colonies, she secured 2500 to 2700 pounds of honey, and in spite of the unpropitious opening of the present season let us hope that she will beat that record this year.

Her husband has become interested in the work, and it is somewhat in contemplation to rent the farm and follow bee-keeping exclusively.

She thinks it would be a good thing if more women would embark in bee-keeping and add to the interest of this department.

We shall look with interest for further reports from our German sister.

# Dr. Miller's Answers

Send Questions either to the office of the American Bee Journal, or to Dr. C. C. Miller, Marengo, Ill.

## Annual Amount of Honey—Drone Characteristic—Amount of Honey Gathered by a Worker-Bee.

1. What is the amount of honey produced in the United States annually?

2. What is the scientific name of the characteristic which allows the drone to enter any hive in the apiary?

3. What is the amount of honey a worker is supposed to carry in during its life? NEW HAMPSHIRE.

ANSWERS.—1. I don't know. The government has made some attempt in the matter, but its reports are known, at least in some cases, to be very unreliable. I am sorry to say that I do not now have at hand even the approximate estimate that has been made. I refer the question to the constituency at large, hoping that some one will help us out.

2. I have never heard any scientific name for it, although it is possible there may be one. In popular language they are called "free commoners."

3. I don't know. It is easy to understand that it is a very variable quantity. Estimating the average life of a worker through the working season at 6 weeks, and allowing it to commence field-work when 16 days old, we have left only 26 days in which it is a gatherer. There may be a dearth during the whole of that 26 days of such character

that it will gather almost nothing, and there may be a continuous flood of honey during the entire span of its life.

Although the question is of such character as not to admit of an absolute answer, there is no law against making some approximation at an estimate. Suppose a colony to have 30,000 fielders at a time when the honey stored and consumed during 26 days amounts to 60 pounds. Dividing that amount among the 30,000 gives about a thirtieth of an ounce for each. That is, it would be the life-work of 30 bees to gather an ounce of honey, and the gathering of a pound section would wear out the lives of 500 bees. Taking the whole season through, that is probably much above the average, and in very exceptional yields it might be doubled or trebled.

## Spring Demand for Bees—Preventing Increase—Piping of Queens.

1. Is there any demand for bees for shipment in the spring? I would advertise through the American Bee Journal at the proper time.

2. Please give one or more plans to prevent increase. My practice has been to clip queens' wings, and, when they swarm, remove the hive to one side and place an empty one in its place, and when the swarm returns let the queen run in with them; then in eight days (or when I hear the young queen piping) destroy all queen-cells.

3. How would it do to hive them in a temporary hive, then kill the old queen and immediately go through the hive and destroy all queen-cells but one, then run the swarm back to their original place? Would they *then* be likely to swarm again?

4. At that stage the queen-cells have not progressed very far. Would they be likely to start others from eggs or larvæ?

5. Does a young queen always pipe before a swarm issues? Mrs. Tupper said she never knew a swarm to issue that she did not hear the young queens piping. IOWA.

ANSWERS.—1. There is usually demand, and sometimes very great demand, for bees in spring.

2. If you don't care for the labor of hiving, here's a plan that will leave you with absolutely no increase: Simply return every swarm that issues. You might have to return the swarm once or more before the dispatching of the old queen, and then one or several times before the issuing of the last queen from its cell. After that there would be no more trouble. You can vary from that in a way that will probably suit you better. When you find sealed cells, remove or kill the old queen, or else wait for the first swarm, return it, and kill the old queen. Then wait till you hear piping, and destroy *all* cells.

3. That would do, only it isn't always safe to depend upon one cell. Sometimes a cell does not contain a good queen. Better wait till the first young queen issues. You may as well save the trouble of hiving in a temporary hive by returning at once to the old hive.

4. Yes, but there would be no advantage in it.

5. You may safely count on the piping.

## Feeding Bees—Rearing Queens—Queenless Bees.

1. On page 335, Edwin Bevins says that he feeds granulated sugar and water with the pepper-box feeder. Will not the food run too fast? I cannot feed sugar and water with the pepper-box on that account. How does he do it?

2. When you wish the bees to replenish the brood-chamber, how do you feed, and where do you place the food?

3. Should you desire the bees to carry the food to the supers, where do you place it?

4. Should you have an extra brood-chamber on that you wanted emptied so as to preserve the combs for next season, how would you get the bees to empty them?

5. What do the bees do with the honey they fill up on when disturbed? and what do they do with it when they rob?

6. Are they not compelled to disgorge themselves before they could or would go out foraging again?

7. What is the appearance of brood sufficiently young to give to a queenless colony to rear a queen from? and what is the limit of age?

8. When you find little patches of brood deposited here and there in the combs, what does it indicate?

9. Did you ever see a case where the combs had no brood, but it was in the first super above the brood-chamber (at the present date, July 23rd)?

10. Why do bees allow queen-cells to remain on their combs when they have already a laying queen? I refer to unsealed cells, of course.

11. Will queenless bees continue to build queen-cells as long as they are queenless, after you tear them away? and is that a sure sign they are queenless, together with having no brood?

12. Where a queenless colony is to be united with a colony that has a queen, is there any danger of the queenless bees killing the queen? and where you see they are disposed to unite peaceably, would they then respect the queen? MISSISSIPPI.

ANSWERS.—1. He may have smaller holes for the passage of the liquid, or he may have a piece of cloth inside.

2. If feed is needed in the brood-chamber, you may count on the bees putting it there in preference to any other place, no matter how you feed nor where you place the food. I use Miller feeders, placing the food on top. The crock-and-plate plan is also good.

3. Please disabuse your mind entirely of all throught that by different placings you can get the bees to carry the feed to certain places. No matter where or how you feed, the bees will first fill vacanies in the brood-chamber, and then turn their attention to the super. But surely you don't want sugar syrup in the super.

4. Take it off the hive and let the bees rob it out.

5. When they fill up because disturbed, they may afterward return the honey to the cells, but I suspect they generally take pretty good toll for their own use. What they get by robbing will be generally deposited in the cells.

6. Possibly not compelled, but I think they always go out empty.

7. Three days from the time the grub hatches out of the egg is theoretically the limit of age; but I suspect that younger brood is better, because when left to their own choice the bees use younger. Be sure that they have at least some cells containing the smallest larvæ. If you give them all kinds, from eggs to sealed brood, they'll make the proper selection.

8. Perhaps a failing queen.

9. No, but such a case might easily be, especially if a swarm should be hived in an empty hive and a super at once given in which the bees had already begun work.

10. I don't know, it's a way they have.

11. Occasionally queenless bees will not start cells, and sometimes they will have cells and no brood while a queen is in the hive.

12. The queenless bees will not disturb the queen if already fully conscious of their queenlessness, and a peaceable uniting means kindly treatment of the queen.

## Returning After-Swarms—Destroying Queens.

Last spring I bought 2 colonies of bees. I transferred 3 swarms from hollow trees and caught several "tramp" swarms. I caught one the 19th of May. It cast 3 swarms, and the first one cast a swarm to-day, so that I have had 25 swarms—too many, entirely.

On page 457, is an easy way to return after-swarms. Will they destroy the queen every time put back, or will they come out again with the same queen?

Do we have to destroy the queens? MISSOURI.

ANSWERS.—When an after-swarm issues, a young queen emerges with it, and one or more young queens are allowed to issue from their cells in the old hive. Then when you return the swarm there is a battle, and the victorious queen issues with the next swarm. This may go on so long as any young queens are left in the cells. When all are out of the cells there will be a fight to the finish, and only one queen left, and consequently no more swarming.

## Beedom Boiled Down

### Rearing One's Own Queens.

Is it advisable for the small bee-keeper to rear his own queens? is answered by Wurth, in Die Biene, with a decided no!

The great bee-master, Gravenhorst, is quoted as saying some years ago:

"We have neither found it practical nor paying, not even for the extensive bee-keeper, to enter into queen-rearing before the regular swarming season." Perhaps, adds Wurth, he was as satisfied as we are of the changing of queens unbeknown to the bee-keeper."—American Bee-Keeper.

### Giving Empty Supers on Top or Below in a Heavy Flow.

The following Stray Straw from Gleanings in Bee-Culture shows that at least in a heavy flow it does not always seem best to give additional room by adding empty supers only on top:

"Every four or five days we overhaul the supers on the hives, taking off those that are finished, and giving empty sections where needed. The empty super is put below all the others; and as few have less than 4, and many 5 and 6 supers, it's a good deal of work

to lift them all off for the sake of putting the empty one under. So, in one of the rounds a week or so ago, partly because it was easier and partly for the experiment, we lifted off no supers, but just put an empty super on top wherever the upper super appeared pretty full. That one experiment was enough. When we made the next round, four or five days later, we found work not pushed so very hard in the added super; but in the other supers wax and burr-combs plastered everywhere in wasteful profusion, built on to the separators and between the supers, spoiling the appearence of some of the sections, besides a waste of wax that might have paid for the extra work. If only two supers had been on the hive, so that the upper empty super would have been nearer the brood-nest, likely the bees would have begun work in it more promptly, but the burr-comb business would have been worse."

### Scissors for Queen-Clipping.

Some time ago I ran across a peculiar pair of scissors that looked promising. The price seemed a trifle high, but as a venture I bought them, and now could I not get another pair I would not part with them for twenty times their cost. Clipping with them is a real pleasure, and one is half inclined to try fancy trimming of the workers' wings just for the fun of it. The handles three inches, blades one inch long, but their virtue lies in the shape of their blades, which are exceedingly slender, with finely rounded points, and all parts but the cutting edges are rounded and polished. They slip under the queen's wings almost of their own volition. There is no danger of impaling the queen on any sharp points, or of denting her abdomen with the sharp side of a wide blade. It is not even necessary to pick the queen from the combs, but just hold her still by pressing her thorax against the comb with one finger, and then snip the desired wing or wings.

Good tools pay, and he who works with poor tools is more than twice tired.—ARTHUR C. MILLER, in American Bee-Keeper.

### Reading Bee Books and Papers.

For a beginner to take a bee-paper and not have a good text-book on the subject of bees is about like a child being started to learn to read in the third reader before he has learned his A B C's, for many of the questions that puzzle the beginner are fully answered in the text-books, but are seldom ever referred to in the bee-papers. Let it not be considered, however, that a single text-book and one bee-paper are sufficient for the progressive bee-keeper, for no author of any book is infallible, and while he may cover certain subjects thoroughly, another author may handle some other subject more ably, and the practical bee-keeper has no time to waste on any method that is not the shortest and best way of accomplishing the desired effect.

On the other hand, the bee-keeper should not make a book-worm of himself. In the long, winter evenings, he may profitably read nearly all that appears in the bee-papers, but in the busy time, when the bees are requiring his attention, and he has many other things to look after, when the time between dark and bed-time is short, he can not hope to read all, if he is taking several papers. He must be able to run through them and decide from the

letters and head-lines what will interest him the most. He will then probably miss much that would be of benefit to him, but better let it pass than to neglect the bees or some other important matter that requires attention.—S. E. MILLER, in Progressive Bee-Keeper.

### Arrangement of Supers on Hives.

I don't know what's the best arrangement of supers on hives; but at present we have settled upon this order: An empty super is put next the brood-nest; next above this the super nearest completion, and so on, the one least advanced being on top. If it seems possible that more room may be needed, an additional super is put above all. Next time around, this upper super generally has the foundation drawn, but no honey in it—sometimes a little honey, and sometimes the foundation not drawn at all.—A Stray Straw in Gleanings in Bee-Culture.

### Some German Uses of Honey.

From a honey leaflet sent out by P. Waetzel, Freiburg, I take the following recipes:

"Honey-water flavored with fruit-juice, lemon or berry, makes a good drink for fever-patients."

"Honey dissolved in hot water is good for hoarseness and coughs, beneficial in diphtheria, influenza and la grippe."

"Honey and unsalted butter made into a salve is excellent in case of scalds and burns."

"Apply a plaster or poultice of honey and flour on severe burns, also on boils."

"Sleeplessness yields to internal honey treatment."—American Bee-Keeper.

### The Carno-Italian Bees.

These are commended by Prof. Frank Benton, and are highly esteemed by the editor of the Rocky Mountain Bee Journal, who says of them:

"Their work in our own apiary this year amply justifies all we have said in their favor. For the locality of the Rocky Mountains they are superior to Italians in many respects, chief among which is the uniformity and high

quality of their work in the supers. They enter the sections readily, cap their combs as white as the snowy range, and use little propolis. The quality of the work of our Carno-Italians is distinctly superior to that of the various strains of Italians in the same yard, while the quantity of honey they have stored is fully equal to the best Italian colonies.

### A. I. Root on Depth of Frames.

The senior editor of the Gleanings in Bee-Culture, asked his opinion with regard to the advantage of shallow frames over those most commonly in use, thus expresses himself:

"Friend H., if you want my personal opinion in regard to the matter, I would say, stick to the Langstroth frame. Since I began bee-keeping, every little while somebody gives his reason for thinking the Langstroth frame is not the best shape or size, and more or less follow him; but in due course of time the new kind is dropped, and we get back to the standard Langstroth. There are not only more bees in the world on this size of frames than all other sizes together, but I am not sure but there are *ten times* as many. Perhaps I am not posted, and up to the times; but I very much doubt whether there is advantage enough in a shallower frame to pay to use another than the Langstroth.

### The Future of Bee-Keeping.

This is viewed very hopefully by Mr. G. C. Creelman, Superintendent of Farmers' Institutes for the province of Ontario. In the course of an address before the Ontario Bee-Keepers' Association, reported in the Canadian Bee Journal, he said:

"We are getting inquiries every day about bees; people want to branch out, and we find the younger people are growing up and asking for information concerning the common things that are about them. I don't know anything amongst Nature's studies better than to give a child a hive of bees; if the parents, if the older brothers, those of you who are here, could take those children and bring them along, and get the school teachers interested, and offer prizes for the best collection at the fall fairs, raised by the boys, of flowers, fruits, and so on, I believe we would have such an awakening in apiculture that the amount of honey produced would exceed the demand, and if at the same time we carried along a package of tracts, and kept the papers full of it from one meeting to the other, and kept talking honey, honey, in all our agricultural papers, a very great interest would be taken, and the demand would be increased. You have to keep these things before the people.

"As it is at present, there is so much lack of interest that the chopping down of a tree, or having to feed the pigs, will keep them away from the meeting; but if they have been thinking of that meeting for eight months or a year ahead, you would have a very much greater attendance. I think you men, who are thinking along these lines, and using your brains to the very best advantage, are not doing enough; you are doing all this but you do not get a chance to tell the great number of people about it; you are to a large extent wasting time. A great many have heard these things before, and they are here for new inspirations, and to see if they can not increase along new lines."



### Using Starters in the Brood-Nest.

It is a fact patent to all, I think, that a colony that is building a set of combs in the brood-nest, and that has at the same time ample storage room in the super, has all desire to swarm removed, and the necessity for rapid comb-building for storage purposes removed, and that the desire for workers in such a colony is paramount. Hence, nearly all the comb that is built by the bees, and immediately occupied by the queen, is built, worker size, whether the queen be one month old or three years old.

But to secure these conditions, everything must be normal. The colony must have a laying queen and an ample field force at the time they are hived, whether the swarm is forced or natural. Again, it is necessary to have a steady flow of honey; but these conditions nearly always prevail at such times in Colorado.

Any condition that will retard rapid comb-building, like an old queen with a good force of young bees and a small field-force, or a colony that has been given a frame or two of brood to help them, and has a small field-force, or a colony, let it be large or small, that is compelled to rear a queen, will invariably construct much drone-comb.

But I think it is still safe and advisable, here in Colorado, where our swarming season does not stammer along through the year, as in oriental countries, but is nearly all done in 20 days after the honey-flow begins, to continue the use of starters only in the brood-nest; and our reward will be a good crop of the most beautiful surplus honey that can be produced, and brood-chambers filled, with none too much drone-comb, as hundreds of my own, and others' hives will attest.—M. A. GILL, in Gleanings in Bee-Culture.

### Four Tons of Comb Honey from 70 Colonies.

I promised you that I would tell you how I produced that four tons of honey from 70 colonies, spring count. In the first place, I had all young queens. I do not believe in keeping queens after they are two years old,

for my experience has been that it does not pay. My method is to keep the bees from swarming if I can. I believe in double-deckers. I find that it works the best to add the extra brood-chamber when they need it. When the queen gets her hive full of eggs and brood, and needs more room, I do not wait for them to get the swarming fever, but raise up the hive and put another under it with drawn combs. I find that drawn combs are far ahead of foundation to keep them from swarming. I do not claim that they will not swarm, nor are all queens good enough for double-deckers, so an apiarist would be foolish to try to use a double-decker with a poor queen. With Dr. Miller, I am still looking for a strain of non-swarming bees. To produce comb honey we must have strong colonies, and keep them so without a desire to swarm. Proper ventilation goes a long way toward this.

Last spring and early summer we had cold weather. I used to go down in the yard and close the entrance according to the strength of the colony, on cold nights. Sometimes it would keep so cold that I would not open them up for two or three days. I have found that those with large entrances, especially on cold nights, did not breed as rapidly. When they are storing comb honey in very hot weather they need a good deal of ventilation from the *bottom*. I have tried raising the hive in the heat of the day, and then lowering it toward evening as it begins to get cooler. I use shade-boards, and I never raise the cover to ventilate unless it is a powerful colony, as they can not cap when there is a draft through the hive. If you do raise the cover, always lower it at night. Work with the bees, for they always want their ventilation at the bottom. Give them plenty of section room. As soon as they get one super well started I raise it up and give them another. I have found that they work all right in three supers; but when you get up to four or five they cap slowly in the upper supers.—GEORGE B. HOWE, in Gleanings in Bee-Culture.



# HONEY AND BEESWAX
MARKET QUOTATIONS

CHICAGO, Aug 7.—Consignments of the new crop are coming to commission houses that have not had honey for years past, and as there is not any consumptive demand they are finding difficulty in disposing of it. Under such conditions it is hardly possible to give accurate prices, as some merchants ask 10 cents for honey that others hold at 15 cents. The prices given in our last quotations are asked but feeling is unsettled. Beeswax steady at 30c.
R. A. BURNETT & Co.

KANSAS CITY, Aug. 25.—Receipts of comb honey more liberal; demand improving. We quote fancy white comb, 24 section case, $3.25; No. 1, white amber comb, 24-section case, $3.00; No. 2, white amber comb, 24 section case, $2.75; Extracted, white, per lb., 6½c; amber 5½@6c. Beeswax, 25@30c. C. C. CLEMONS & Co.

ALBANY, N.Y., Aug. 26.—Demand increasing; receipts light as yet, and could sell more comb than coming. Light, 15c; mixed, 14@15c; dark, 13c. Extracted quiet; light, 7c; dark, 6c. Beeswax, 30c. H. R. WRIGHT.

CINCINNATI, Aug. 6—The supply about equals the demand for extracted honey. We are selling amber extracted in barrels from 5½@6½c, according to quality. White clover, barrels and cans, 7@8½c, respectively. Comb honey, fancy, in no drip shipping cases, 16@16½ cents. Beeswax, 30c. THE FRED W. MUTH CO.

NEW YORK, July 8.—Some new crop comb honey now arriving from Florida and the South, and fancy stock is in fair demand at 14c per pound, and 12@13c for No. 1, with no demand whatever for dark grades.
The market on extracted honey is in a very unsettled condition, with prices ranging from 5@5½c for light amber, 5½@6½c for white, and the common Southern at from 50@55c per gallon. Beeswax steady at from 30@31c.
HILDRETH & SEGELKEN.

CINCINNATI, Aug. 8.—New honey is now offered very freely, particularly extracted. The demand for honey is about as usual at this time of the season. I made sales at the following figures: Amber, 5@5½c; water-white alfalfa, 6½c; fancy white clover honey, 7@7½c. Comb honey, fancy water-white, brings from 14@15c. Beeswax, 27@30c. C. H. W. WEBER.

SAN FRANCISCO, July 22.—White comb honey, 11½@13½c; amber, 8@10c. Extracted, white, 5½@5 c; light amber, 4½@5c; amber, 4½@4½c; dark, 3½@4½c. Beeswax, good to choice, light, 27½@29c; dark, 25@26c.
This season's crop is not only unusually late, but is proving much lighter than was generally expected. While the market is unfavorable to buyers, the demand at extreme current rates is not brisk and is mainly on local account.